NORTH CAVALCADE STREET

TEXAS

EPA ID# TXD980873343

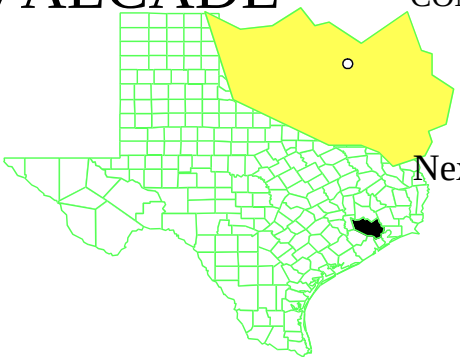
Site ID: 0602956

EPA REGION 6

CONGRESSIONAL DISTRICT 18

Harris County

Houston



Updated: May 2, 2005

Next Update: September 2005

Site Description

Location:

- Northeast of intersection of Cavalcade & Maury Streets, about one mile southwest of the intersection of Loop 610 North & U.S. 59, Houston, Harris County, Texas.

Population:

- Approximately 50,000 plus urban area.

Setting:

- The nearest residence is 200 feet to west of the site.
- The facility is situated in a industrial/commercial area, with a warehouse and metal casting shop on-site.
- Of the 23-acre site, the original wood preserving operation covered about nine acres; all wood-treating facilities were removed in early 1960's.

Hydrogeology:

- Subsurface geology consists of interbedded clays, silts and sands of the Beaumont formation, with a piezometric level about four feet below surface.
- Two primary aquifers underlay the site, the Chicot and the Evangeline. The Evangeline is the principal ground water source in the area and is isolated from surface recharge from this site.

Current Site Strategy

- The objective of this site cleanup is to protect human health and the environment by controlling the migration of shallow ground water contaminants and/or eliminate the potential to contaminate deeper aquifers, and if possible restore the shallow ground water to a potential future beneficial use. In addition a second objective is to remediate contaminated surface soils so that they no longer pose a dermal contact or ingestion risk. The 1988 Record of Decision required that ground water be extracted and treated. The pump and treat remedy construction for ground water was completed in 1993, but suspended in 1995 when large, unexpected volumes of Dense Non-Aqueous Phase Liquid (DNAPL) exceeded the capacity of the treatment system. A supplemental field investigation was conducted in 1998 to better understand the geologic framework at the site, to determine the extent of DNAPL, and to support modifications of the system. The modified

treatment system was placed in operation in August 2001. Shaw Environmental has continued to optimize the treatment system to handle increased volumes of ground water and to more efficiently separate out the DNAPL phase prior to treatment.

- Region 6 and the TCEQ are currently evaluating field data which indicate that the contaminants have migrated to a deeper sand, approximately 30 feet below ground surface. The remedial approach and objectives of the 1988 Record of Decision may not be adequate to address this additional volume; the current ground water pump and treat system does not include this deeper zone. EPA Region 6 and TCEQ completed additional field work in January 2004 to further delineate the source areas, and dissolved ground water plumes, for both the shallow and deeper sand. The Agencies are considering other remedial options for ground water, in addition to re-evaluating the current remedy in place. The ground water pump and treat system has been temporarily suspended as Region 6 and TCEQ evaluate the additional information from the 2004 investigation. The system is being operated periodically for maintenance only.

- In addition, efforts to bioremediate the contaminated soils were discontinued in August 1998 due to the inability of the remedial method to reach the 30 mg/kg cleanup goal for carcinogenic polycyclic aromatic hydrocarbons (cPAHs). The soils were consolidated into a temporary treatment cell and covered with an impermeable liner awaiting final disposition by EPA and TCEQ. The temporary treatment cell is routinely inspected by TCEQ to ensure that integrity is maintained. A Detailed Analysis Technical Memorandum (December 2002) has been drafted to support the development and analysis of remedial alternatives in the Feasibility Study (FS). However, the FS has been temporarily delayed pending, first, further evaluation of the ground water plume and source areas. (See "Present Status and Issues" below.)

- The Texas Commission on Environmental Quality (TCEQ) is currently the lead agency in managing the contracts to remediate ground water and soils. Lead agency status is transitioning back to EPA in the Fall 2005. TCEQ, however, will continue to assist EPA in addressing those remaining remediation actions for the site.

Wastes and Volumes

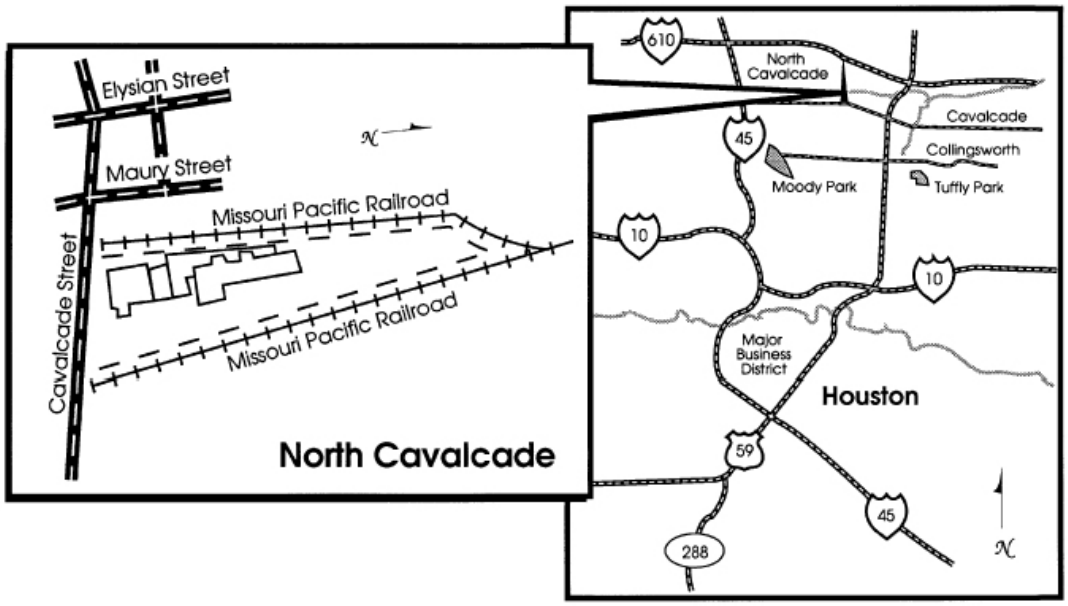
- The pollutant at the North Cavalcade site is creosote, and its related constituents, in both soil and ground water. Detectable constituents include polycyclic aromatic hydrocarbons (PAHs), carcinogenic polycyclic aromatic hydrocarbons (cPAHs), benzene, toluene, xylene, ethylbenzene, and metals. [Cleanup criteria is based on final concentrations expected for cPAHS (soils) and benzene (ground water)] Estimated volumes of contaminated soil are 10,000 cubic yards and 14.2 million gallons of contaminated ground water.

Site Assessment and Ranking

NPL LISTING HISTORY

Site HRS Score: 37.08
Proposed Date: 10/05/84
Final Date: 6/10/86
NPL Update: No. 2

Site Map and Diagram



The Remediation Process

Site History:

- In 1946, the site was developed for wood treating by Leon Aron (Houston Creosoting Co., Inc.), and operated until a bank foreclosed in 1961.
- The property was vacant until early 1970s, and two warehouses built by 1980. Two businesses are located on the southern half of the property: Coastal Casting and Owens Electric.

Health Considerations:

- Soil and shallow groundwater are contaminated.
- Contaminated soils are stockpiled and covered pending final remediation.
- The nearest water well (industrial use) is located 1,500 ft. up gradient from the site. However, the shallowest water-bearing units beneath the site is not currently being used as a water source. City of Houston water wells are principally screened in the Evangeline Aquifer about 1900 feet deep and the nearest well is about one mile away, up-gradient to the N. Cavalcade site.

Current Site Strategy:

- The objective of this site cleanup is to protect human health and the environment. The objective is being accomplished by:
  Control of migration of shallow ground water contamination;
  Reduction and/or prevention of deeper aquifer contamination;
  Elimination of the source of ground water contamination by remediating contaminated soil and removing any free-flowing products.

Record of Decision

Signed: June 28, 1988

The 1988 Record of Decision selected remedy included biological degradation of soil contaminants, and the extraction and treatment of ground water, using oil/water separation and carbon absorption. This remedy provides protection for humans from unhealthy exposures to contaminated soil and ground water.

On August 8, 1994 EPA approved an "Explanation of Significant Differences (ESD)" to raise the soil cleanup criteria for carcinogenic polycyclic hydrocarbons (cPAHs) from 1 to 30 parts per million (ppm). The cleanup level was set at 30 ppm after a 1992 field pilot failed to demonstrate that bioremediation would reduce the cPAH concentration to below 1 ppm. As explained in the ESD, the 30 ppm cleanup level for soils will continue to meet or exceed the human health protection objective of the 1988 decision.

Other Remedies Considered		Reason Not Chosen
1.	"No Action"	Human health not protected
2.	On-Site Landfill	Contaminants not destroyed
3.	On-Site Incineration	No increased benefit and more costly
4.	In Situ Soil Flushing	No increased benefit and more costly

The first five-year remedy assessment was completed July 8, 1998. The second five-year review assessment was completed in September 2003.

Enforcement

- No viable responsible parties have been found.

Community Involvement

- Community Involvement Plan: Developed 3/85, Revised 5/88, 2/89, and 12/92
- Open houses and workshops: 9/85, 12/92, 11/93, 4/94, 10/94
- Proposed Plan Fact Sheet: 4/88
- Public Meeting: 5/88
- ROD Fact Sheet: 7/88
- Fact Sheets: 8/85, 4/87, 7/87, 4/88, 10/88, 4/90 (TWC), 12/90 (TWC), and 6/91 (TWC), 4/94
- Five-Year Reviews: 7/98, 9/03
- Citizens on site mailing list: 80
- Constituency Interest: No formal citizen groups or organizations, generally a low profile site.
- Some demand exists for Spanish translations of fact sheets and informational materials.
- Site Repository: Houston Central Library, Texas & Local History Division, Julia Idison Building, 500 McKinney Street, Houston, TX 77002

Technical Assistance Grant

- Availability Notice: 4/89
- Letters of Intent Received: 1. LIFT Endowment Fund, Inc. - 2/8/90 (withdrawn 8/20/90)
- Final Application Received: North & South Cavalcade St. Group 12/93 and 9/94

- Grant Award: Applications denied
- Current Status: No TAG
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Contacts

- **Remedial Project Manager:** Camille Hueni (EPA) 214-665-2231, Mail Code: 6SF-AP; E-mail: hueni.camille@epa.gov
- **State Project Manager:** Marilyn Long (TCEQ), 512-239-0761, Mail Code 143; E-mail: mlong@tceq.state.tx.us
- **Community Involvement:** Phyllis (June) Hoey, (EPA) 214-665-8522, Mail Code: 6SF-PO; E-mail: hoey.phyllis@epa.gov
- **Attorney:** Joseph Compton (EPA) 214-665-8506, Mail Code: 6RC-S; E-mail: compton.joseph@epa.gov
- **State Coordinator:** Karen Bond 214-665-6682, Mail Code: 6SF-AP; E-mail: bond.karen@epa.gov
- **Contractors:** Shaw Environmental & Infrastructure, Inc. (Ground Water Treatment and Remedial Design; Treatment Plant Operations)
- **EPA Regional Public Liaison:** Arnold Ondarza (303) 312-6777; E-mail: ondarza.arnold@epa.gov
- **Toll Free Number:** 1-800-533-3508

Present Status and Issues

- Operable Unit 1, Groundwater

    - The ground water pump and treat system was suspended in December 1995, due in part to problems handling the dense non-aqueous phase liquid (DNAPL) volumes. Foster Wheeler began construction in June 2000 to modify the ground water system to more effectively separate out the dense non-aqueous phase liquids extracted and treat the remaining ground water. A modified ground water treatment system was installed and placed in service in August 2001. Shaw Environmental & Infrastructure is the current treatment system operator, under contract to the TCEQ. Shaw has optimized the system to treat the ground water in continuous flow mode and to treat larger volumes of ground water.

    - In August 2000, Foster Wheeler completed a supplemental groundwater field investigation which indicated DNAPL in both the shallow aquifer and the intermediate sand aquifer (to approximately 25 feet below ground surface), and estimated volumes of DNAPL source in both zones.

    - The Texas Commission on Environmental Quality (TCEQ) conducted a pump test in November-December, 2002, to further determine the intermediate aquifer conditions and recovery rates for the DNAPL. Additional field work was completed in January 2004 to further define DNAPL distribution and extent of contamination for the intermediate sand aquifer. EPA and TCEQ will use that information to determine if the existing remedy, under the 1988 ROD, is protective and if those remedial objectives are still applicable. A Feasibility Study and Report will be drafted this Summer 2005 to address these issues.

    - The Harris County Toll Road Authority is extending the Hardy Toll Road south from Loop 610, along the railroad track right-of-way at the western boundary of the site. TCEQ is coordinating the field mobilization with the Authority and will share sampling results along the western (down-gradient direction) boundary as that information becomes available.

- Operable Unit 2, Soil

- In August 1998, the soil biotreatment phase was discontinued, at the contractor's request, due to the method's inability to reach those cleanup standards proposed for cPAHs in the 1994 "Explanation of Significant Differences." The contaminated soil was consolidated at the north end of the site and covered with a temporary cover. Periodic inspections ensure that the temporary containment cell is intact and protective of human health.

- TCEQ completed a supplemental remedial investigation to support a feasibility study exploring final remedial options for the contaminated soil in 2001. Work on the Feasibility Study has been temporarily suspended pending evaluation of the current ground water remedy.

- Second Five-Year Review

  EPA has completed the second Five-Year Review to assess the protectiveness of the current ground water and soil remedies. The first Five-Year Review, completed in 1998, found the remedies to be protective of both human health and the environment. Results of the second Five-Year Review documented that actions performed at the site to date are protective of human health and the environment in the short-term because the contaminated soils have been contained and are protected from access, and the ground water treatment system is addressing the DNAPL and affected ground water from the shallow-most aquifer. Although the deeper affected ground water (~ 30 feet below surface) and DNAPL have not yet been fully addressed, there are currently no known ground water receptors for this aquifer. The City of Houston provides drinking water onsite and to neighboring residences through their public drinking water system. To ensure long-term protection, EPA and TCEQ are evaluating the current system and other remedial options for both ground water and contaminated soils.

  The second Five-Year Review is available to the public at the following information repository:

  Houston Central Library
  Government Documents Area
  500 McKinney Street
  Houston, Texas 77002

  Questions concerning the North Cavalcade Street Superfund site should be directed to Camille Hueni at (214) 665-2231 or 1-800-533-3509 (toll-free).

Schedule

- **Waste LAN Schedule Milestones**

Amend soil remedy	2005
Next 5Yr Remedy Assessment	2008
Operation and Maintenance Begins	2009*
Preliminary Close Out Report	2009*
NPL Deletion	2020*

  *** Pending remedy re-evaluation for soils and ground water.**

Benefits

- 10,000 - 12,000 cubic yards of contaminated soil will be treated.
  - Soil Cleanup Criteria
    - cPAH 30 ppm*
    - Benzene 0.04 ppm
- 14.2 million gallons of contaminated water have been treated to date.
  - Groundwater Cleanup Criteria
    - cPAH Non-Detect*
    - Benzene 5 ppb (parts per billion)
- 21 acres will eventually be returned to potential industrial use.

* cPAH cleanup criteria changed per July 1994 "Explanation of Significant Differences."

* Detection limit set as 5 ppb.